

Performance Report

Period covered by report: July 1, 1998 – December 31, 1998

“The present and future effects of ground fires on forest carbon stocks, metabolism, hydrology and economic value in Amazonia and the Cerrado”

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from

Daniel C. Nepstad (Principal Investigator)
Adriana Moreira (Co-Principal Investigator)
The Woods Hole Research Center
P.O. Box 296, Woods Hole, MA 02543

Paulo Moutinho
Instituto de Pesquisa Ambiental da Amazonia
Campus do Guamá, UFPa
Caixa Postal 8610,
Belém, Pará, CEP 66.075-970, Brasil

Heloísa Miranda, Antonio Miranda
Universidade de Brasília
Brasília, Distrito Federal, Brasil

Submitted to:

Donald W. Deering, Technical Officer

Goddard Space Flight Center
National Aeronautics and Space Administration
Greenbelt, MD

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We used the first portion of our LBA-Ecology award to plan for future LBA research activities in Brazil, and to accelerate our development of an Amazon-wide model to predict forest susceptibility to fire. The need for this model, which has also been supported by a NASA-TECO award since February, 1997, was highlighted late in 1997 and early in 1998 by the widespread (and highly publicized) burning of tropical forests in Amazonia, Indonesia, and Mexico, provoked by the most severe El Niño episode of the century. We have now completed and published an initial version of this model, which we call “RisQue” (from the Portuguese, *Risco de Queimadas*). The resulting map (attached) of forest fire susceptibility was used by the Brazilian environmental agency, IBAMA, as the basis for its 1998 field campaigns to reduce the occurrence of accidental fire in Amazonia. Moreover, our model predictions of a very high Amazonian forest fire risk in 1998 were the incentive behind the establishment of a large Brazilian government program called PROARCO, funded by the World Bank, and designed to reduce the occurrence of accidental forest fires.

Publications resulting from this first portion of LBA-Ecology funding include:

- Nepstad, D, A. Veríssimo, A. Alencar, C. Nobre, P. Lefebvre, P. Schlesinger, C. Potter, P. Moutinho, E. Mendoza, E. Lima M. Cochrane, Vanessa Brooks. In press. Large-scale impoverishment of Amazonian forests by logging and fire. *Nature*
- Nepstad, D, A. Moreira, A. Alencar. In press for January '99 release. Flames in the Rainforest: Origins, Impacts and Alternatives to Amazonian Fire. World Bank, 114 pp. Pilot Program to Conserve the Brazilian Rain Forest (In English and Portuguese)
- Nepstad, D., A. Moreira, A. Veríssimo, P. Lefebvre, P. Schlesinger, C. Potter, C. Nobre, T. Krug, A. C. Barros, A. Alencar, J. R. Pereira. 1998. Forest fire prediction and prevention in the Brazilian Amazon. *Cons. Bio.* 12(5): 951-953.